

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (known as 1131)

09/646946

INTERNATIONAL APPLICATION NO.

PCT/AU99/00201

INTERNATIONAL FILING DATE

24 March 1999

PRIORITY DATE CLAIMED

24 March 1998

TITLE OF INVENTION

DOCUMENT MANAGEMENT EXTENSION SOFTWARE

APPLICANT(S) FOR DO/EO/US

GILLESPIE, David; STRANGES, Frank

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 19(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.  
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:
  1. International Search Report
  2. Int'l Preliminary Examination Report

"Express Mail" mailing label number EK 043203694 US

Date of Deposit September 21, 2000

I hereby certify that this paper is being deposited with the U.S. Postal Service "Express Mail-Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to: Hon. Commissioner of Patents and Trademarks, Washington, D. C. 20231.

*Edwin D. Schindler*

Edwin D. Schindler, Reg. No. 31,459

September 21, 2000

Date



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09/646946

534 Rec'd PCT/PTO 21 SEP 2000

17 ☒ The following fees are submitted:

Basic National Fee (37 CFR 1.492(a)(1)-(5)):

Search Report has been prepared by the EPO or JPO..... \$830.00

International preliminary examination fee paid to USPTO (37 CFR 1.482)

\$640.00

No international preliminary examination fee paid to USPTO (37 CFR 1.482)

but international search fee paid to USPTO (37 CFR 1.445(a)(2)).. \$710.00

Neither international preliminary examination fee (37 CFR 1.482) nor \$970.00  
international search fee (37 CFR 1.445(a)(2)) paid to USPTO..... ~~\$970.00~~

International preliminary examination fee paid to USPTO (37 CFR 1.482)

and all claims satisfied provisions of PCT Article 33(2)-(4)..... \$90.00

ENTER APPROPRIATE BASIC FEE AMOUNT = \$ 970.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

\$ -0-

Claims	Number Filed	Number Extra	Rate		
Total 34 Claims	34 -20 =	14	X \$22.00	\$ 252.00	
Independent Claims	1 -3 =	-0-	X \$74.00	\$ -0-	
Multiple dependent claims(s) (if applicable)			+ \$230.00	\$ -0-	

TOTAL OF ABOVE CALCULATIONS = \$1,222.00

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement  
must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).

\$ -0-

SUBTOTAL = \$

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(f)).

\$ -0-

TOTAL NATIONAL FEE = \$1,222.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +

\$ -0-

TOTAL FEES ENCLOSED = \$1,222.00

Amount to be:	
refunded	\$
charged	\$

- a. ☐ A check in the amount of \$\_\_\_\_\_ to cover the above fees is enclosed.
- b. ☒ Please charge my Deposit Account No. 19-0450 in the amount of \$\*\*1,222.00 to cover the above fees.  
A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
overpayment to Deposit Account No. 19-0450. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR  
1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Edwin D. Schindler  
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SIGNATURE

Edwin D. Schindler

NAME

31,459

REGISTRATION NUMBER

Applicant or Patentee: David GilliespieSerial or Patent No.: 09/646,946Filed or Issued: 24 March 1999For: DOCUMENT MANAGEMENT EXTENSION SOFTWARE

Docket No.: \_\_\_\_\_

Examiner: \_\_\_\_\_

Art Unit: \_\_\_\_\_

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS**  
**(37 CFR 1.9(f) and 1.27 (c) - SMALL BUSINESS CONCERN**

I hereby declare that I am:

- ☐ the owner of the small business concern identified below:  
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: 80-20 SOFTWARE PTY. LIMITEDADDRESS: Level 8, 10 Queens Road, SOUTH MELBOURNE Victoria 3004, AUSTRALIA

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in the 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) if Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, DOES NOT EXCEED 500 PERSONS. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year and, (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled "DOCUMENT MANAGEMENT EXTENSION SOFTWARE" by inventor(s) David GILLESPIE and Frank STRANGES and described in:

- ☐ the specification filed herewith  
☒ application serial no. PCT/AU99/00201, filed 24 March 1999  
☐ patent no. \_\_\_\_\_, issued \_\_\_\_\_

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who could qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). \*NOTE: SEPARATE VERIFIED STATEMENTS ARE REQUIRED FROM EACH NAMED PERSON, CONCERN OR ORGANIZATION HAVING RIGHTS TO THE INVENTION AVERRING TO THEIR STATUS AS SMALL ENTITIES (37 CFR 1.27).

NAME 80-20 SOFTWARE PTY. LIMITEDADDRESS Level 8, 10 Queens Road, SOUTH MELBOURNE Victoria 3004, AUSTRALIA

- ☐ INDIVIDUAL      ☒ SMALL BUSINESS CONCERN      ☐ NONPROFIT ORGANIZATION  
☐ See attached sheet for additional person(s), concern(s), or organization(s).

I acknowledge the duty to file, in this application or patent notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: DAVID GILLESPIETITLE DIRECTORADDRESS: Level 8, 10 Queens Road, SOUTH MELBOURNE Victoria 3004, AUSTRALIA

SIGNATURE: \_\_\_\_\_

DATE: 6/10/00

09/646946

534 Rec'd PCT/PTO 21 SEP 2000

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: D. GILLESPIE ET AL. ART UNIT:

SERIAL NO.: 09/ EXAMINER:

FILED:

P.C.T. APPLICATION NO.: PCT/AU99/00201

PRIORITY CLAIM: MARCH 24, 1998

INTERNATIONAL FILING DATE: MARCH 24, 1999

TITLE: DOCUMENT MANAGEMENT EXTENSION SOFTWARE

PRELIMINARY AMENDMENT

Hon. Commissioner of Patents and Trademarks  
Box PCT  
Washington, D. C. 20231

Dear Sir:

Prior to an examination on the merits of the above-identified patent application, please amend the above-identified application as follows:

IN THE CLAIMS

Please amend the claims, as examined during the P.C.T.

"Express Mail" mailing label number EK 043203694 US  
Date of Deposit September 21, 2000

I hereby certify that this paper is being deposited with the U.S. Postal Service "Express Mail - Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to: Hon. Commissioner of Patents and Trademarks, Washington, D. C. 20231.

  
Edwin D. Schindler, Reg. No. 31,459

September 21, 2000  
Date

international phase, as follows:

Claim 3, lines 1-2, delete "any previous claim" and substitute therefor --Claim 1--.

Claim 6, lines 1-2, delete "any previous claim" and substitute therefor --Claim 1--.

Claim 12, lines 1-2, delete "any previous claim" and substitute therefor --Claim 1--.

Claim 14, lines 1-2, delete "any previous claim" and substitute therefor --Claim 1--.

Claim 32, lines 1-2, delete "claims 30 and 31" and substitute therefor --Claim 30--.

Claim 33, lines 1-2, delete "any previous claim" and substitute therefor --Claim 1--.

#### REMARKS

Prior to an examination on the merits of the above-identified patent application, please enter the foregoing preliminary amendments.

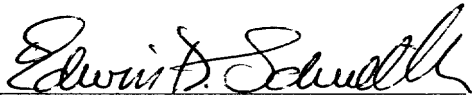
Claims 1-34 are pending in the above-identified patent application. No amendments were entered during the P.C.T. international phase. Claim 1 is presented in independent form.

By the present amendment, dependent Claims 6, 12, 14, 32 and 33 have been amended in order to remove the multiple dependencies therefrom. The application is now in condition for a full examination on the merits.

Accordingly, an early examination on the merits and allowance are, therefore, respectfully requested and earnestly solicited.

Respectfully submitted,

D. GILLESPIE/F. STRANGES

By   
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09/646946

WO 99/49388

PCT/AU99/00201

1 534 Rec'd PCT/PTO 21 SEP 2000

DOCUMENT MANAGEMENT EXTENSION SOFTWARE

This invention relates to a computer software program for an improved document management system.

The basic function of document management software is to manage a document's lifetime from creation to destruction and at least give someone an even chance of locating the document by being able to search on more than an eight-dot-three pseudonym for the document.

Enterprise document management software on the other hand was designed to solve the problems of large organisations with thousands of networked computers. The software was designed to securely and dependably manage every electronic document produced with the enterprise and reliably retrieve those documents wherever and whenever required.

Enterprise document management software typically has the following components, which are a database, a browser interface, a search interface and a method of intercepting file save and open calls.

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WO 99/49388

PCT/AU99/00201

2

The database is used to store information about a document other than its file name. Information such as the author, the typist, the date of creation and notes are typical fields, however, most importantly, are the database controls where the file is stored and the access to that location. The database record contains a pointer to the file system saying find this file. It also generally contains information as to which application should be launched to edit the document such as Microsoft, Word or Excel.

The database is, in effect, a Connection Manager.

Many enterprise document management systems provide an interface whereby the user can browse in some logical fashion through the documents available to them.

All enterprise document management systems provide some form of search ability with respect to the fields recorded in the database. The responsiveness of the search is entirely dependent on the database chosen for the back-end.

Some of these systems also offer full text searching of the contents of the electronic documents themselves.



WO 99/49388

PCT/AU99/00201

3

Many of the enterprise document management systems are able to enforce proper profiling and storage documents by intercepting calls made by the document production software to the file system. There are two ways in which this can be achieved. One is to use macros to alter behaviour of the production application or interfere with the low level operating system code used by the network to properly manage the file system. The macro method usually involves the launch of a part of the document management system in response to a file save or open command. Most systems require that their software be therefore continuously running in the background in order to respond to these calls, however this can have dramatic effects on the operators system performance. As there is only so much RAM to share between applications, the more that can be made available for production applications the better.

The problem with many of the enterprise document management systems which are aimed essentially at the large corporate market is that apart from being expensive software, it does not cater for small to medium size organisations.

WO 99/49388

PCT/AU99/00201

4

Since the first enterprise development systems became available, Network Operating Systems(NOS) have been quietly maturing in the background. Modern NOS's such as Microsoft's NT4 Server have been built in object (document) level security, replication and file systems databases such as Exchange eliminating the need to rebuild these things as expensive add-ins.

NOS's have matured to the point where much of what a document management system does is already built into the NOS or tightly integrated components like Exchange and Office.

It is the object of this invention to provide a document management system which is able to be utilised by everyone.

The invention, in its broadest sense, is a document management extension system for Microsoft Exchange wherein the system merges the functionality of index databases, file repositories and messaging systems using Exchange and leverages the tight integration of Exchange and an NT Server for security and redundancy management.

In this specification, any reference to a particular software version is an indication that the system of the invention

WO 99/49388

PCT/AU99/00201

5

operates with at least that particular version. As software is upgraded, so the system will, where necessary, be upgraded to operate with the later software version.

In order that the invention may be more readily understood, we shall describe, a preferred embodiment of the invention. The flow chart shown on page 5a provides an indication of the operation of Document Management Extension of the present invention and is of value when considering the description of the invention.

Document Management Extensions for Microsoft Exchange (DME) is a document management system for everyone. DME merges the traditional functionality of index databases, file repositories and messaging systems by using Exchange 5.0 and leverages the tight integration of Exchange 5.0 and an NT Server 4.0 for security and redundancy management.

DME is tightly integrated with host applications. There is no standalone application, rather numerous interfaces to the Document Management Extensions. The only user interface to DME is via dialogs in ones applications or via the Find application.

WO 99/49388

PCT/AU99/00201

6

The specification in detail describes each of these interfaces and provides technical descriptions of the interfaces.

#### DOCUMENT PRODUCTION APPLICATION INTEGRATION

##### File Open and File Save/Save As

Applications supported by DME in Release 1.0 were Word 97, PowerPoint 97, Binder 97, Excel 97 and Outlook 97. Eastman (WANG) Image Viewer and Windows Paintbrush are also supported. At some future time, non-Office applications may be directly supported. Three Office 97 applications support the Open Document Management API. DME leverage this support. Non-ODMA compliant applications such as Outlook 97 and Excel 97 use macro interfaces to arrive at the same result. From the user's point of view all applications behave in exactly the same fashion.

##### Word 97, Binder 97 and PowerPoint 97

The Open Document Management API (ODMA) is the acknowledged standard API for access to Document Management Systems. Word 97, Binder 97 and PowerPoint 97 are ODMA compliant applications. Word 97, Binder 97 and PowerPoint 97 register themselves with DME

WO 99/49388

PCT/AU99/00201

7

using an ODMRegisterApp call to the ODMA Connection Manager (ODMA32.DLL). ODMA returns a handle for the application to use for identification in all subsequent calls. When the application exits, it calls ODMUnRegisterApp to return the handle. As part of this registration process, ODMA searches the Registry for entries in HKEY\_Local\_Machine/Software/Classes/ODMA32. It tries to connect to the first Document Management System (DMS) key with a sub-key named DEFAULT. The value of the DMS key is the path to the DME DLL that provides the functionality specified by ODMA. All screens for selecting and setting properties of documents come from **Document Management Extensions for Microsoft Exchange**. The DME search application (discussed separately below) interacts independently with the DME DLL rather than via an application.

#### **Excel 97 and Outlook 97**

Neither Excel 97 nor Outlook 97 are ODMA compliant applications. For these applications macrocode replaces the ODMA32.DLL calls in the ODMA model. The macros are not editable by the user. To the user there is no difference in application behavior as between an ODMA and a non-ODMA application.

WO 99/49388

PCT/AU99/00201

8

### **Internet Browser Integration**

The interaction between Exchange Server and Internet/Intranet users is provided by Microsoft Internet Information Server (IIS) 3.0 Active Server Pages in conjunction with Exchange Server 5.0 Active Server Components. Outlook or Exchange user sessions establish direct MAPI connections with Exchange Server, whereas DME and browsers use Active Messaging objects to access the Exchange public folders.

### **DME DOCUMENT MANAGEMENT FEATURES**

#### **Versioning**

Many users need to keep track of who did what to a document when. With versioning users can go back in time and see who made what changes to a document on various dates.

Versioning in all supported applications is accomplished by adding historical copies of documents to the MAPI record for the document.

WO 99/49388

PCT/AU99/00201

9

Versions of a document can be seen within the document properties and can be accessed directly from Document Find.

#### Check In/Out to Local Machine

Before examining Check In and Check Out it is worth looking at how DME transacts with the Exchange Server in a normal File Open. The Checkout procedure is merely an extension of that functionality. Both procedures are designed to ensure maximum redundancy in operation.

#### How Does it Work?

When a user opens a document using Document Management Extensions for Microsoft Exchange, the following process occurs:

- The DME Service sets a flag in the DME object Store by setting the Status property to OPEN and by inserting the time and user's name in the StatusInfo property.
- The DME Service copies the object from the public DME store to the user's mailbox.
- The document is copied from there to a local TEMP directory for editing by the DME user.

WO 99/49388

PCT/AU99/00201

10

When a document is closed or saved the following process occurs:

- The document is moved from the local TEMP file to the TEMP folder in the OST File (if the server is offline) or the TEMP folder in the user's mailbox (if the server is online).
- All documents are moved from the user's mailbox to the DME store.
- For each document, the Status property is reset to AVAILABLE and the StatusInfo property is set to null.

In fact online/offline detection automatically switches users between integration with the document manager and working offline. If the network or server should fail while a document is open, the user can continue to work without even being aware of the outage. As soon as the network is available the user's Offline file will automatically resynchronise with the User's Mailbox on the server. Users are able to Check documents out to their local machine using a right click command in any dialog (see context menus below). DME allows you to save these documents to the file system so that you can access them when not connected to the server or send them to a user without access to the document manager.



WO 99/49388

PCT/AU99/00201

11

Those documents are still visible within the rest of DME however the 'check out' option is no longer available on the right click menu. If another user attempts to open the document they receive a message informing them who has the document checked out and when it was checked out (similar to the message received when a document is in use).

If the user selects 'check out' from the right click menus available from with DME dialogs, the following process occurs:

- DME sets a flag in the object Store by setting the Status property to CHECKED\_OUT and by inserting the time and user's name in StatusInfo property.
- DME copies the object from the public DME store to the user's location on the physical file system.

When a user wishes to check a document in, they must be connected to the network. The Check-ed out copy of the document is moved to the DME object store and the flag is reset in the DME object store. If the object does not exist in the DME store (ie it was created offline), then it is added to the store.

WO 99/49388

PCT/AU99/00201

12

## Windows 95 (NT Workstation) Desktop Integration (Shell Extensions)

DME modifies the following parts of the Windows 95 (Windows NT) shell:

- DME folders are added to the Windows Explorer and Outlook 97.
- The Start Menu is modified.
- An application is added to the system tray.
- An item is added to the context (right click) menu for some document types.

## Windows 95 Explorer (namespace extensions)

A DME name space extension is added to the shell. This appears as a child of 'My Computer' in Explorer. DME contains a folder named 'My Documents' which contains the results of a stored query of DME that returns all (within a preset limit) documents for which the user is the creator.

The user may create other sub-folders of the DME object by saving searches of the document set. When the user saves searches in

WO 99/49388

PCT/AU99/00201

13

Document Management Extensions for Microsoft Exchange, those searches appear as sub-folders of the **DME** object.

**Outlook 97 (name space extensions)**

**Browsing documents**

**DME** is logically an extension of the file system (rather than the messaging system) and should therefore appear as such in Outlook 97. The folder '**Document Manager**' is a shortcut to the name space extension found in Windows Explorer which gives you access to one's saved searches and works in a similar manner as the 'My Documents' shortcut which points to the system folder 'My Documents' on the local drive of the host. The **DME** document store will not appear as part of the Exchange Folder Tree either as a public folder or as a private folder.

**System Tray**

A quick find icon has been added to the Start Bar Status Area (sometimes called the system tray) located on the lower right of screen when the Start Bar is in default horizontal orientation. The icon permits a quick retrieval from **DME** on the basis of

WO 99/49388

PCT/AU99/00201

14

document number or provides faster access to the DME Find Documents application.

### Start Menu

The Start Menu has been modified in several ways:

- A command called 'In the Document Manager' has been added to the Find menu using a shell extension.
- The 'Open from Document Manager' command has been added to the start bar which launches a DME open dialog rather than the standard OSA.exe dialog.
- The list of recent edits will be accessible under the 'Documents' menu. This will be done using a doclink shell extension.

### Document Find

The "In the Document Manager..." option on the start menu under Find launches an application for searching the DME store that is almost identical in appearance to the normal Windows 95/NT4 Find program.

WO 99/49388

PCT/AU99/00201

15

The application permits searching on all DME properties and permits viewing of object properties and setting of permissions. Context menus also deliver check out functionality from the search dialog. From this dialog, the user is able to save searches and retrieve those searches using a folder tree drop. Full text searching is also available from this dialog (see full text searching below). "Send to" and "Send link" functionality in the Find Application enables the user to send documents and searches to others in both an organisation and outside the organisation.

#### Context Menu

Context menu handlers (a form of shell extension) have been used to add menu items to the context menu for all potential DME file objects when they are displayed outside a DME component. The context menu is displayed when a user clicks a file object with the alternate (usually the right) mouse button. If the object is capable of import to DME an item is added to the 'Send to' menu, being 'send to Document Manager'.

WO 99/49388

PCT/AU99/00201

16

Within DME dialogs a context menu that presents the following options appears:

**Open:** which is the default (double click) option and which launches the appropriate application and opens the file.

**Check Out:** which is disabled if the document is already checked out.

**Check In:** which is disabled if the document is already checked in.

**Properties:** which displays the properties screen and which permits the viewing and editing of document properties or attributes. Date created field and date modified fields are also part of this dialog. Further to this, a history of document change events can be captured for each document or for all documents in a store. Users can see a full history of transactions on their documents directly from any property dialog. They can also turn the history on or off without affecting the server side audit trail.

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WO 99/49388

PCT/AU99/00201

17

**Status:** the status field permits the implementation of simple workflow and contains choices such as draft and published - Administration configurable.

### **Back End Functionality**

#### **Exchange Object Store**

DME uses the Fulcrum Knowledge Network Server to index and search the message store. The administrator can configure the Index to cover one or more Server folders within the Object store.

A user is able to see whichever indices he/she has permission to search. A user (other than the administrator cannot see the structure of the store and is not aware of that structure.

Each server has a unique identifier which coupled with a document number (eg. Server1-2345) provides a unique identifier for the Exchange organisation.

**Document Management Extensions for Microsoft Exchange's Object Store** and structured index is contained in full within an Exchange 5.0 public information store.

### **Security**

WO 99/49388

PCT/AU99/00201

18

To function as a document management system, DME must prevent uncontrolled and unauthorized access to its object store. The only method of access to the DME store is programmatically (ie via Document Management Extensions for Microsoft Exchange). DME implements access security using the Exchange address book. The type of security applicable to a document is similar to that of an exchange folder. Since no user except the administrator can access the store without using DME the Exchange Server automatically implements all external (to Document Management Extensions for Microsoft Exchange) security.

#### **Read/Write Permission and Search Permission**

Read/Write access allows the user to change the document and properties but restricts them from changing permissions or deleting them. The permission setting is useful in team collaboration environments where the team leader is able to set the permissions on the document and everyone else can work on it but may not change the permissions or delete them.



WO 99/49388

PCT/AU99/00201

19

Search access allows a user to discover the item through searching and view the properties but not open the site. This permission setting allows others in the organisation to know of the existence of a document, however, it does not enable a person to read the document without first contacting the author. An example of this is where an Organisation would wish to have people know that it had done research on Intranets without having them necessarily having the right to read the research.

#### **Time-Based Archive Delete**

All items can be flagged for archive or delete after a specified period of time based on the document type allocated to that item. Organisations can therefore enforce a time-based delete or archive policy by setting a time limit based on the document type which can be overridden if necessary.

User's on the other hand may set any document level security attribute except delete using a DME interface to the Exchange security settings.

WO 99/49388

PCT/AU99/00201

20

## Replication

Replication is supported only on a whole of document set basis in release 5.0. In Release 5.5 in the future, administrators will be permitted to specify a document type as capable of individual replication. This means that documents of the type replicable will be copied to a public folder that is included in the Exchange replication system.

## Full Text Searching

Full text searching is available on all DME documents. The user accesses the functionality either from an DME 'Open' dialog within a supported application ('Find in Text' field) or via the 'Find Document' item on the Windows 95 (NT Workstation) 'Start' menu and other up-dates of Windows. The user may also perform an Internet Explorer based full text (or attribute) search.

DME use the Fulcrum Knowledge Network and Fulcrum Exchange Connector to provide this functionality.

WO 99/49388

PCT/AU99/00201

21

### Administrator Options

There are very few administrator options supported by DME in keeping with the policy of *'its already there don't rebuild it'*. User access is administered via the exchange address books. Secure access to documents is administered at the user level. The only administrator override being that the administrator has open access on all documents.

In addition to all Microsoft Exchange administration options, the Exchange administrator is able to:

- Create and delete Document Types.
- Set archive properties (and eventually replication properties) in relation to those Document Types.
- Search across the whole document management extension organisation - (Global Administrator Search) regardless of document permission, but is unable to open or view documents without explicit permission.

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WO 99/49388

PCT/AU99/00201

22

**USER INTERFACE****Document Production Application Integration****File Open and File Save/Save As**

All applications supported by DME use identical File Open and File Save/Save As dialogs.

**DME File Open Screen**

DME intercept all file interactions in supported applications and replace the standard dialogs with DME dialogs. The DME dialogs are almost identical in appearance and behavior to their Office 97 and updates counterparts. An interesting feature of the Save dialog is that in remaining consistent with the Microsoft look and feel a form of Auto-Profiling has been implemented. When a user single left clicks on an existing document, DME fill in all profile fields for that document. All a user need do is identify a document which is like the one being saved, click on it and change the name (or any other attribute) to complete the profiling of that document. They need not change anything, but then a new document will be created with exactly the same

2025 RELEASE UNDER E.O. 14176

WO 99/49388

PCT/AU99/00201

23

attributes (which could lead to confusion when the user wishes to retrieve the document). In a document management system, the only unique attribute is the document number.

#### **Internet Browser Integration**

DME supports a Browser interface that permits remote searching and browsing of documents using the Microsoft Office (Word, Excel and PowerPoint 97) viewers. Though editing was not available in release 5.0 it has become available in subsequent document management extension programs.

#### **Versioning**

DME versioning is identical in look and feel to the existing Word 97 and updates versioning.

Similar versioning dialogs have been added to Office Applications that do not directly implement versioning. The DME versioning dialogs implement versioning within DME. This form of versioning is one set of properties to many versions of the document.

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WO 99/49388

PCT/AU99/00201

24

### Linking

This feature allows users to link documents to each other. User's can specify one or two way logical links between related documents and link information can be viewed from any search result in the DME Find Client.

### Windows 95 (NT Workstation) Desktop Integration

DME modifies the following parts of the Windows 95 (Windows NT) desktop:

- DME folders are added to the Explorer 95 and Outlook 97.
- The Start Menu is modified.
- An application is added to the system tray.
- An item is added to the context (right click) menu for some document types.

### Windows 95 Explorer

"Document Manager" appears as a child of 'My Computer' in Explorer . "Document Manager" contains a folder named 'My Documents' which contains the results of a stored query of DME

WO 99/49388

PCT/AU99/00201

25

that returns all (within a preset limit) documents for which the user is the creator.

The user may create other sub-folders of the "Document Manager" folder by saving searches of the document set. When the user saves searches in Document Management Extensions for Microsoft Exchange, those searches appear as sub-folders of the "Document Manager" folder.

#### Outlook 97

#### Browsing documents

DME is logically an extension of the file system (rather than the messaging system) and should therefore appear as such in Outlook 97. The folder 'Document Manager' is a shortcut to the namespace extension found in Windows Explorer which gives you access to your saved searches and works in a similar manner as the 'My Documents' shortcut which points to the system folder 'My Documents' on the local drive of the host. The DME document store will not appear as part of the Exchange Folder Tree either as a public folder or as a private folder.

DME is logically an extension of the file system (rather than the messaging system) and should therefore appear as such in Outlook 97.

WO 99/49388

PCT/AU99/00201

26

### Journal

Documents accessed via **DME** will update the Outlook 97 journal. This effectively provides a history functionality of the document management system at a user view level.

### System Tray

A quick find icon has been added to the Start Bar Status Area (sometimes called the system tray) located on the lower right of screen when the Start Bar is in default horizontal orientation. The icon permits a quick retrieval from **DME** on the basis of document number or provides faster access to the **DME Find Documents** application.

### Start Menu

The Start Menu has been modified in several ways:

- A command called 'In the Document Manager' has been added to the Find menu using a shell extension.
- The 'Open from Document Manager' command has been added to the start bar which launches a **DME** open dialog rather than the standard **OSA.exe** dialog.



WO 99/49388

PCT/AU99/00201

27

- The list of recent edits will be accessible under the 'Documents' menu. This will be done using a doclink shell extension.

#### Document Find

The "In the Document Manager" found under the Find option on the start menu launches an application for searching the DME store that is almost identical in appearance to the normal Windows 95/NT4 Find program.

The application permits searching on all DME properties and permits viewing of object properties and setting of permissions. Context menus also deliver check out functionality from the search dialog. From this dialog, the user is able to save searches and retrieve those searches using a folder tree drop down. Full text searching is also available from this dialog.

#### Context Menu

Menu items have been added to the context menu for all potential DME files when they are displayed outside a DME dialog. The context menu is displayed when a user clicks a file object with

2025-01-08 10:00:00

WO 99/49388

PCT/AU99/00201

28

the alternate (usually the right) mouse button. If the object is capable of import to **DME** an item is added to the 'Send to' menu, being 'send to Document Manager'.

Within **DME** dialogs a context menu that presents the following options appears:

**Open:** which is the default (double click) option and which launches the appropriate application and opens the file.

**Check Out:** which is disabled if the document is already checked out.

**Check In:** which is disabled if the document is already checked in.

**Properties:** which displays the properties screen and which permits the viewing and editing of document properties or attributes. Date created field and date modified fields are also part of this dialog. Further to this, a history of document change events can be captured for each document or for all documents in a store. Users can see a full history of

WO 99/49388

PCT/AU99/00201

29

transactions on their documents directly from any property dialog. They can also turn the history on or off without affecting the server side audit trail.

**Status:** The status field permits the implementation of simple workflow and contains choices such as draft and published - Administration configurable.

#### RECORDS MANAGEMENT

The Document Management Extension System has many record management features which include the following:

##### Custom Records Management HTML Forms

A DME Administrator (or user) can create HTML forms using a simple HTML editor (such as Microsoft Front Page Express) for use as a data entry form for Records Management purposes.

Organizational forms can be simply and efficiently designed and implemented as Standard Data Capture forms for Records management or any other data capture process.

2025 RELEASE UNDER E.O. 14176

WO 99/49388

PCT/AU99/00201

30

**Record Viewer Application**

The DME Record Viewer allows a user to retrieve/complete/view/save HTML Records Management Forms.

The ODMA compliant HTML forms viewer allows standard HTML forms to be treated just like any other managed object. Users can load a form, enter the required data and save the form (complete with data) as a new DME document.

Records Management is just one of the possible uses for the new Forms technology.

**Permanent Records**

Users can flag a DME object (including the HTML Records Management Forms) as permanent. The effect of this is to freeze an object in a 'published' state.

When an object is flagged as permanent, it cannot be unflagged, modified or deleted. To records management, this is a preservation feature and to others this is a publication feature as the object is effectively frozen at that point of time.

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WO 99/49388

PCT/AU99/00201

31

**Records Manager User Class**

DME Administrators can specify a group of users, who have modify rights in respect of all permanent objects.

Organizations can designate certain users as being part of the Record Manager Group. Those users have modify permission in relation to permanent objects. This permits the designation of specialist Records Managers.

It is envisaged that other embodiments of the invention will exhibit any number of and any combination of the features of the previously described two embodiments.

Whilst we have described herein one specific embodiment of the invention it is to be understood that variations and modifications in this can be made without departing from the spirit and scope thereof.

WO 99/49388

PCT/AU99/00201

32

We Claim:

1. A document management extension system for Microsoft Exchange wherein the system merges the functionality of index databases, file repositories and messaging systems using Exchange and leverages the tight integration of Exchange and an NT Server for security and redundancy management.
2. A document management extension system as claimed in Claim 1 wherein the system includes a user interface and this is accessed through dialogs in specific applications or through a find application.
3. A document management extension system as claimed in any previous claim wherein non-Microsoft Office and Office applications including Word, Powerpoint, Binder, Outlook, Eastman(Wang), Image Viewer and Windows Paintbrush are supported by the system.
4. A document management extension system as claimed in Claim 3 wherein when the system transacts with the Exchange

WO 99/49388

PCT/AU99/00201

33

Server in a standard file open the processes which take place include:

- a document management extension service setting a flag in a document management extension object store by setting the Status Property to Open and by inserting the time and user's name in a Status information property;
- the document management extension service copying the object from the public document exchange store to the user's mailbox; and
- the document being copied from the user's mailbox and moved to a local temporary directory for editing by the document management extension user.

5. A document management extension system as claimed in Claim 4 wherein when a document is closed or saved the processes which occur include:

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WO 99/49388

PCT/AU99/00201

34

- moving the document from a local temporary file to the temporary file in an OST file if the server is offline or to a temporary folder in the user's mailbox if the server is online;
  - moving the documents from the user's mailbox to the document management extension store; and
  - for each document, resetting the Status property to available and the Status Information Property to null.
6. A document management extension system as claimed in any previous claim wherein when a network or server fail while a document is open, the user is able to continue working even if not aware that the network or server has failed.
7. A document management extension system as claimed in Claim 6 wherein as soon as the network is available, the user's offline file automatically re-synchronises with the user's mailbox on the server.
8. A document management extension system as claimed in Claim 7 wherein the system enables a user to check documents out



WO 99/49388

PCT/AU99/00201

35

to their local machine using a check out command available in any dialog.

9. A document management extension system as claimed in Claim 8 wherein the system informs a user who attempts to open a document that has been checked out that the document has been checked out and when the document was checked out.
10. A document management extension system as claimed in Claim 9 wherein the system enables the user to select the check out function from the document management extension dialogs and the processes which occur include:
  - document management extension setting a flag in the object Store by setting the Status property to checked out and by inserting the time and user's name in Status information property; and
  - document management extension copying the object from the public document management extension store to the user selected location on a physical file system.

WO 99/49388

PCT/AU99/00201

36

11. A document management extension system as claimed in Claim 10 wherein the system enables a user to check a document in if the user is connected to the network and the processes which occur include:

- the checked-out copy of the document being moved to the document management extension object store and a flag being reset in the document management extension object store, however if the object does not exist in the document management extension store, then it added to the store.

12. A document management extension system as claimed in any previous claim wherein the system is able to be utilised in a Windows 95 (Windows NT) shell application and subsequent revisions of the application, the application undergoing various processes including;

- addition of document management folders to Windows Explorer and Outlook;
- modification to a Start Menu;

WO 99/49388

PCT/AU99/00201

37

- addition of a system tray to the application.
  - addition of further items to a context menu for some types of documents.
13. A document management extension system as claimed in Claim 12 wherein the modification to the Start Menu include:
- addition of a In Document Manager command using a shell extension; and
  - addition of a Open from Document Manger command to the Start Bar which launches a document management extension dialog.
14. A document management system as claimed in any previous claim wherein the In Document Manager command in the Start Menu launches an application or system for searching document management extension store.
15. A document management system as claimed in Claim 14 wherein the system allows for searching on all document management

WO 99/49388

PCT/AU99/00201

38

extension properties and allows viewing of object properties and setting of permissions.

16. A document management extension system as claimed in Claim 15 wherein within document management extension dialogs a context menu has an open function which launches the appropriate application and opens a file.
17. A document management extension system as claimed in Claim 16 wherein within document management extension dialogs a context menu has a check out function which is disabled if a document is already checked out.
18. A document management extension system as claimed in Claim 16 wherein within document management extension dialogs a context menu has a check in function which is disabled if a document is already checked in.
19. A document management extension system as claimed in Claim 18 wherein within document management extension dialogs a context menu has a properties function which displays the properties screen and which permits the viewing and editing of a documents properties.

WO 99/49388

PCT/AU99/00201

39

20. A document management extension system as claimed in Claim 19 wherein within document management extension dialogs a context menu has a Status function which allows the implementation of workflow and includes options of draft or published.
21. A document management extension system as claimed in Claim 20 wherein the system prevents uncontrolled and unauthorised access to its object store.
22. A document management extension system as claimed in Claim 21 wherein a user of the system can set any document level security attribute except delete using a document management exchange interface to the exchange security settings.
23. A document management extension system as claimed in Claim 22 wherein a user is able to alter a document and properties but is restricted from altering permissions or deleting permissions.

WO 99/49388

PCT/AU99/00201

40

24. A document management extension system as claimed in Claim 23 wherein the system allows a user to conduct a search for a document and view the document but not open the site.
25. A document management extension system as claimed in Claim 24 wherein the system allows for a time-based archiving or deleting such that after a specified time a document can be archived or deleted and the system further allows for the archiving or deleting function to be overridden.
26. A document management extension system as claimed in Claim 25 wherein administrator options supported by the system include:
- creating and deleting types of documents;
  - setting archive properties and/or replication properties in relation to the types of documents;
  - permitting open access on all documents; and
  - searching across the whole of a document management extension organisation.

WO 99/49388

PCT/AU99/00201

41

27. A document management extension system as claimed in Claim 26 wherein the system allows replication on a whole of document set basis or an individual document replication.
28. A document management extension system as claimed in Claim 27 wherein the system permits full text searching on all document management extension documents and the system utilises Fulcrum Knowledge Network and Fulcrum Exchange Connector to provide his functionality.
29. A document management extension system as claimed in Claim 28 wherein the system permits users to link documents to each other by specifying one or two way logical links between related documents.
30. A document management extension system as claimed in Claim 29 wherein the system enables a system administrator or user to create HTML forms using a HTML editor for use as a data entry form for record management purposes.
31. A document management extension system as claimed in Claim 30 wherein the HTML editor is Microsoft Front Page Express.

WO 99/49388

PCT/AU99/00201

42

32. A document management extension system as claimed in claims 30 and 31 wherein the system includes a document exchange extension record viewer which allows a user to retrieve, or complete or view or save HTML records management forms.
33. A document management extension system as claimed in any previous claim wherein the system allows for a user to flag a document management extension object as permanent.
34. A document management extension system as claimed in Claim 33 wherein the system allows document management extension administrators to specify a group of users which can have modification rights in respect of all permanent objects.

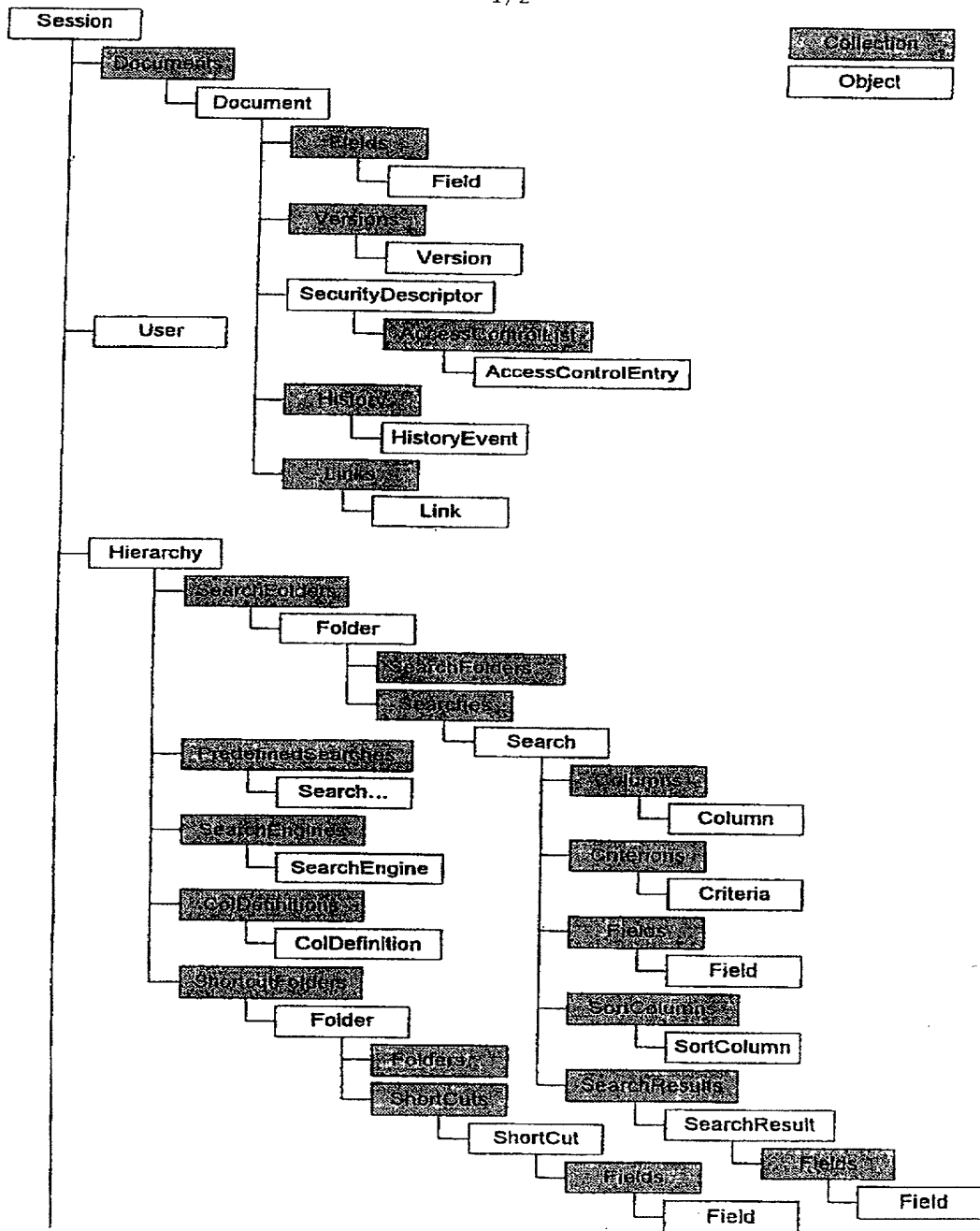
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WO 99/49388

PCT/AU99/00201

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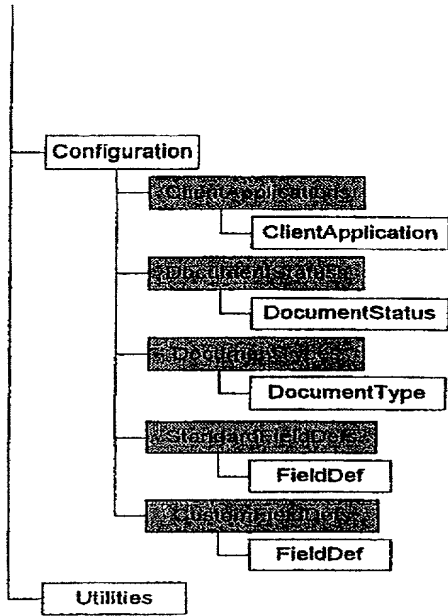


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WO 99/49388

PCT/AU99/00201

2/2



**DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION**  
**English Language Declaration**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

**"DOCUMENT MANAGEMENT EXTENSION SOFTWARE"**

the specification of which

(check one)



is attached hereto.



was filed on 24 March 1999 as

PCT

Application Serial No. PCT/AU99/00201  
and was amended on \_\_\_\_\_

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

<u>PP2522</u> (Number)	<u>Australia</u> (Country)	<u>24 March 1998</u> (Day/Month/Year Filed)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)  
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)  
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

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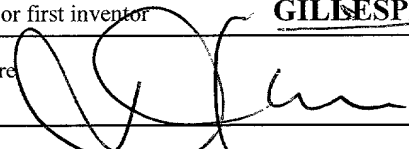
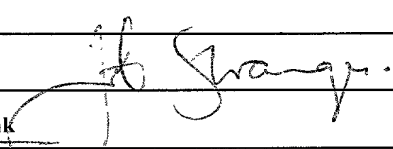
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(Supply similar information and signature for third and subsequent joint inventors.)